Paulo Costa

Software Engineer
me@paulo.costa.nom.br
https://github.com/paulo-raca

1 Professional Experience

- **Crowdstrike** / **Iperlane** - October/2016 to October/2021

  Development of software container for Android apps, capable of installing, monitoring and executing 3rd party apps isolated from the system and without extra permissions.

  The project was developed mostly in Java, with parts in C++, Kotlin and Python.

  I also worked on several modules and tools of interest, including:

  - **ADB Proxy**: Uses SSH tunnels to attach the local computer to a remote Android device. Useful for remote control and debugging.
  - **Jacoco Multiprocess**: Allows collecting coverage data on multiprocess Android apps
  - **Android-Full-Framework** - Gradle plugin for Android projects that expose every method/field from every Android Framework version as public at compile-time and then modifies the bytecode with the necessary boilerplate to access it. Very handy for hacking Android's internals.
  - **HiddenAPI** - Unlocks access to [Android's non-SDK interfaces](https://developer.android.com/guide/app-compatibility/restrictions-non-sdk-interfaces)

  I was initially hired by Iperlane, which was acquired by CrowdStrike in October/2017.

- **Geofusion** - April/2015 to October/2016

  Development of the Java backend and Web frontend of Onmaps, a tool for analisys and visualization of geospatial data, used mostly as marketing tool (Geomarketing).

  The project uses a Java backend, Web frontend, Orable database and spatial indexes in Solr.

- **Facebook** - October/2012 to September/2014

  I've worked on the project responsible for managing all of Facebook's servers and other datacenter devices, and which acts as an intermediary between several automation tools, such as: Provisioning, application deployment, repairs, financial systems, data replication, monitoring, etc.

  This project is written in Java and communicates with other applications through Thrift APIs. I also contributed with several client applications, usually written in Python, PHP or C++.

- **Veridis Tecnologia** - September/2009 to October/2012

  Veridis develops solutions for biometric access control (Fingerprints in special). I was responsible for developing the library for capture and matching Fingerprints (Based on NBIS) and the firmware for a embedded system that controls biometric doors and turnstiles.

  Most Development was done in C++, but all libraries have APIs and samples in Java and C#.

- **Griaule Biometrics** - May/2006 to September/2009

  Griaule sells a software library for capture and matching of fingerprints. I was responsible with supporting several fingerprint scanners, Linux support, modularization and other improvements.

  Most development was done in C++, but there are bindings and examples for Java, Delphi, C# and VB.

- **CPqD - Research and Development Center in Telecomunications**, Intern - December/2005 to February/2006

  As an intern, my job consisted in fixing known bugs, writing JUnit tests and add new features to existing components.

  All components are written in Java and tipically used Hibernate, EJB e Struts.

2 Education

- **Specialization in Complex Data Mining** - IC/Unicamp - March/2018 to August/2018.

- **Computer Engineering** - IC/Unicamp - March/2006 to December/2010.
  Study Certificates:

  – Visual Computing
  – Project of Dedicated Hardware Systems
  – Software Engineering
  – Project of Information Systems

- **Technician in Eletronics** - Cotuca/Unicamp - February/2007 to December/2010

- **Technician in Informatics** - Cotuca/Unicamp - February/2003 to December/2006
  Emphasis in Support Systems

3 Languages

- **English** - Advanced Level.
  109/120 points on TOEFL iBT (November/2008).

- **Portuguese** - Native Speaker.

4 Some personal Projects

- **u2fdev** FIDO U2F authenticator, with various storage backends (stateless, SQLite) and authentication methods (none, notification, biometric). Android app supporting NFC and Bluetooth is under development.

- **MongoFS** and **SpotifyFS**- FUSE filesystems to manage documents in Mongo databases as JSON files and play Spotify songs as MP3 files.

- **Contour Curves for Highcharts** - Plugin to the popular Highcharts library to plot 2-D and 3-D contour curves.

- **Experimental Design** - Web interface to easily plan and analyze experiments using DOE methodologies.

- **charlcd-gpio** e **ttyWiegand** - Linux kernel modules for driving HD44780-compatible character LCDs and to receive data from Wiegand deviced through GPIO pins.

- **JIPS** - Toy Java VM implemented in ArchC. Partial support for JNI, no Garbage collection, no threads.

- **Space Wars** - StarWars-like 3-D space battle game writen with Java + OpenGL + OpenAL.

- **Mini-MIPS** - MIPS-like multi-cycle microprocessador. Everything was developed, from behavioral VHDL to physical layout. Used GHDL, Cadence Encounter and Cadence Virtuoso.

- **Rabiscomatic** - Plotter assembled from old printers and a ARM microcontroller.

- **Calculatrix** - Plots math functions in in 2 or 3 dimensions. Developed with Java and OpenGL.

- **3D Wohoo** - Libraries for drawing 2-D and 3-D computer graphics, built from the scratch in Pascal/Delphi and Java.